

Memo, Visit Dr. Prince at Pharmacia Genetic Engineering Inc. on Friday, February 23, 1990

- 1) Dr. Prince presented, under the secrecy agreement signed on January 8, 1990, the most recent data regarding Chimpanzee isolates of NANB-related nucleic acid and the generation of libraries containing those sequences. A significant effort over many years has been carried at the Blood Center in the field of hepatitis research, and the experience accumulated certainly is a valuable asset in an attempt to move rapidly to obtain sequence information with regard to these isolates.
- 2) Pharmacia Genetic Engineering Inc. was presented to Dr. Prince as a gene technology enterprise launched in 1987. A considerable investment has been necessary to establish vanguard gene technology under proprietary control by Pharmacia -several million dollars alone have been spent to generate an effective expression system in *E. coli*, a pre-requisite for any meaningful product development.
- 3) The availability of gene libraries and clones derived from these libraries at the Blood Center on the one hand, and the molecular biology expertise on the other, constitutes an excellent fit for a rapid joint effort directed primarily towards expressed gene products for diagnostic use. While Pharmacia is not currently developing vaccines for use in prophylactic medicine, it was considered that the potential use of certain gene products derived from the joint technology effort for the purpose of vaccine development may constitute an opportunity of partnership arrangements with the view towards obtaining additional revenues.
- 4) A successful program resulting in a marketable product would in all likelihood result in royalty payments (other arrangements are conceivable but were not discussed at this time). While such arrangements appear acceptable to both parties, Dr. Prince is currently in need to obtain direct funding for a continued research effort at the Blood Center. The resources at Phage to support, financially, such an effort are limited and require rapid progression of the effort to be undertaken in order to become justified.

5) The conceivable scope of an agreement and schedule for the execution of the program to follow may contain the following ingredients:

- a) A joint effort with provision to Phage, of all clones and libraries with regard to the Chimpanzee high-titer isolate gets underway immediately. Sequence information is secured both at the Blood Center and at Phage (and possibly at an academic institution which has approached the Blood Center; any commercial consequence of such a third-party collaboration would need to be defined and agreed upon before any agreement becomes effective).
- b) Joint patent applications are filed to cover the discoveries made.
- c) The Blood Center will license the rights from these patents to Phage against a royalty fee, which takes into account (i) the general range of 4-6% royalty for diagnostic products based on patentable discoveries and (ii), the relative contribution of the Blood Center/Phage when obtaining the discovery.
- d) The Phage expression system used remains proprietary to Phage and is not the result of the jointly developed technology and thus not part of the agreement.
- e) Irrespective of par. d) above and in the interest of research efforts at the blood bank, proteins, if any, which are derived from the identified sequences and expressed at Phage, using its proprietary expression system, will be made available in reasonable quantities to Dr. Prince. For the initial quantities, Phage considers that there will be no charge for these materials. At a later stage, Phage may have to negotiate, in good faith, for cost-coverage of the generation of materials for this purpose; (Note: While the company intends to make said proteins available, there cannot at this time, be an absolute guarantee that it will be possible to provide the materials; this is dependent on the success of attempts at the expression of such proteins).
- f) As soon as an agreement has been completed, the effort would get underway. An important check point is Nov 1, 1990. Phage shall have the right to terminate the collaboration at that time, or commit to an additional cash payment during 1991 (prepaid royalty, see below). If Phage terminates the agreement, the results obtained during the March-November period have been generated with financial support from Phage, which shall retain the rights (eg. clones) derived from those results.
- g) During the March-November period, Phage and/or the Blood Center may negotiate with a third partner for licensing technology towards vaccine development. If the jointly developed technology is sold, the Blood Center and Phage shall split the revenues equally, after

deduction of direct marketing costs expensed to close that arrangement.

h) While exclusive rights may be granted to Phage to make, use and sell products in the industrialized world, there is a desire to retain rights at the Blood Center for certain third-world countries with the view to stimulate local enterprises to make and sell low-cost products in those markets.

i) For the March-November period, Phage would make installment payments in the total amount of \$50,000 in support of Dr. Prince's research and thereby secure certain rights to the jointly developed technology during that period.

j) On Nov 1, 1990 Phage must exercise an option to continue the collaborative effort into 1991. If the option is exercised, a prepaid royalty of \$100,000 becomes payable during 1991. The prepaid royalty will be used to support Dr. Prince's research effort within the framework of the joint collaboration. (Note: The initial sum of \$50,000 payable under an agreement during 1990, does not constitute prepaid royalty)